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# Assessment of Challenges and Opportunities of Value Addition in Sidama Coffee Value Chain: The Case of Dale District, Southern Ethiopia

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**Abstract**
Coffee has a great social, cultural and livelihoods importance for the majority of Ethiopian population and to the national economy as well. This paper focuses on assessment of challenges and opportunities of value addition in sidama coffee value chain. Key Informant Interview (KII), Focus Group Discussion (FGD) and surveys were conduct to collect qualitative and quantitative data from key stakeholders in the coffee value chain. Qualitative data analysis methods and statistical analytic techniques were used to analyze the data. The survey result identified *land, disease and climate change* as the three major constraints for coffee value addition. In contrary the three major opportunities identified were *demand for coffee, extension services & government policy*. These results were further complemented by findings of the FGD and KII which identified *dependence on rain-fed agriculture, disease, and lack of expert in the coffee sector* as the major constraints and *availability of trainings, increase in the price of coffee, the availability of Awada research center* as opportunities. Disease was identified as the major constraint in the process of value addition, which calls the focus of research centers on releasing new varieties and tackle the problem. In addition the dissemination of modern input technologies should be focused to increase productivity. Effort should also be made to strengthen farmers' cooperative and encourage collective action of farmers to lower transaction costs to access inputs.
**Keywords:** Coffee/ Value chain/ /value addition/Sidama

## 1. INTRODUCTION

Ethiopia is the world's 5th and Africa's leading coffee producer. The country produces 5.6% of world production. It is also the world's 10th coffee exporting country. Coffee is the leading commodity in generating foreign exchange for the country i.e. 24.2% in 2012/13 (Alemseged and Yeabsira, 2014).

The coffee sub sector has been characterized by a bunch of opportunities and constraints. Opportunities of coffee industry include favorable policy environment, unique character of coffee quality, birth place of coffee and strong local coffee culture & availability of different varieties of coffee. Besides these most of the cooperatives are getting accesses to different certification schemes, which can be considered as a means for value addition (Grote et al., 2009 and Wissel et al., 2010). Despite the above opportunities and others there are a number of challenges related to coffee business. Some of the challenges are inconsistency in quality supply, weak logistic services, weak public private partnership, and weak market information system (Alemseged and Yeabsira, 2014).

The participation of smallholder coffee farmers and cooperatives in coffee value addition activities has been limited. Commonly smallholder coffee farmers and cooperatives perform activities like coffee harvesting, sorting, washing, and drying tasks. Besides, the whole chain is facing bottlenecks in using quality inputs and technologies, adulteration, awareness on quality of coffee, and breakups in maintaining trust & commitment among cooperative members. These all contributes negatively for value addition.

The existing opportunities related to value addition of coffee should be identified and the smallholder producers, processors and other value chain actors should capitalize on them. Even though coffee contributes a lot for income generation of the farmers there were different constraints which avert the smallholders' farmers from adding value to their product and benefit from participating in the international market. Therefore, this study was intended to deal with the existing information gap on opportunities and constraints of coffee value addition. Thus, this study tried to investigate the opportunities and challenges of value addition for smallholder producers & processors.

## 2. STUDY DESIGN AND METHDOLOGY

### 2.1. Description of study area

Dale district is found in Sidama zone, Southern Nations Nationalities and People's Regional State. It is located about 45 km South of Hawassa and 320 km South of Addis Ababa. It covers a total area of 277 $km^2$ having 36 rural Kebele Administrations (KAs) and one town administration called Yirgalem.

### 2.2. Methodology

The study was undertaken on coffee producers and processors in Dale district. Key-informant interviews and focus group discussions were held with representatives of major stallholders in the value chain. Most quantitative data

 

were collected directly from producers and processors through survey.

Cross sectional survey was made and two stage sampling procedure was followed. Accordingly, three kebeles were selected from 36 kebeles found in the district purposively based on their coffee production capacity and agro-ecological representation. In the second stage 182 producer households were selected proportional to the size of total population. The size of Sample was determined by using the formulas provided by Cochran (1967) and adjusted for finite population proportion as indicated by Glenn (2013) as shown below.

$$n_0 = \frac{Z^2 pq}{e^2}$$ ----------equ.1(Cochran, 1963)

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$ ----------equ.2(Glenn,2013)

Where $n_0$ is the sample size,
Z is the score of the normal curve at 95% confidence level,
p is the estimated proportion of an attribute that is present in the population (85%), and
q is 1-p. (15%)
n is the adjusted sample size for finite population correction and
N is the population size

Since coffee producer in the three kebeles were assumed to have homogenous attributes in coffee production the variability were assumed to be 15% and sample size was calculated to 196 household ($N_0=(1.96)^2(0.85x0.15)/(0.05)^2=196$) accordingly 182 adjusted sample size estimated by applying finite population correction using 2,486 total population of three kebeles and proportionately samples were taken from each kebeles. ( n=196/1+ (196-1)/2,487=182). The individual coffee producer household were selected using, systematic random sampling technique from the list of producers provided by each kebele. In the case of processors 10% was taken and individuals were selected randomly using systematic random sampling method.

In this study the data were managed by using SPSS and STATA softwares. Based on the objective of the study, different approaches were used to analyze the data. Narration and triangulation were used to analyze qualitative data and descriptive and inferential statistics were used for quantitative data analysis. The descriptive analysis was made by using mean values of sample units. The inferential statistics was made by using chi-square and F-test.

## 3. RESULTS

### 3.1. Socio-Demographic Characteristics

As it can be verified from the table, 95 % of the sample households were male. With regard to marital status, 89% of total sample respondents are married.

**Table: Demographic characteristic of sample coffee Producers**

| | | Kebele | | | | | | Total Mean and N% | c2 /F-value |
|---|---|---|---|---|---|---|---|---|---|
| | | QaliteSimita | | Chume | | BeraTedicho | | | |
| | | Mean | N % | Mean | N % | Mean | N % | | |
| **Age of the Producer** | | 40 | | 47 | | 42 | | 43 | 4.501*** |
| **Sex of the Producer** | **Female** | | 1.1% | | 4.5% | | 5.0% | 10.5% | 4.120* |
| | **Male** | | 29.6% | | 29.6% | | 30.2% | 89.5% | |
| **Marital Status of the Producer** | **Married** | | 30.0% | | 28.3% | | 30.6% | 89.0% | 10.143* |
| | **Single** | | 0.0% | | 0.6% | | 1.1% | 1.6% | |
| | **Divorced** | | 0.6% | | 0.0% | | 0.0% | 0.5% | |
| | **Widowed** | | 0.6% | | 5.0% | | 3.3% | 8.8% | |
| **Formal level of Education of the Producer** | | 6 | | 6 | | 7 | | 6 | 1.640 |
| **Family size of the producer** | | 5 | | 5 | | 5 | | 5 | 0.729 |
| **Coffee farming Experience** | | 12.69 | | 14.18 | | 23.5 | | 17 | 26.628*** |

N=sample size, *** and * significant at less than 1% and 10% significance level, respectively,
Source: Own survey result, 2016

The educational background of the sample household heads is believed to be an important feature that determines the readiness of household heads to accept new ideas and innovations. The mean age of the sample households was 42. The one-way ANOVA, F test, revealed that there is difference at 1% level of significance on mean age of farmers among KAs. The data indicates that average family size in each household is 5 members.

The average years of farming experience in coffee production for total sampled household were 17 years. The years of experience show a statistically significant difference at 1% level among the study KAs.

### 3.2. Major challenges of the actors along coffee value chain

3.2.1. Smallholder coffee producers

According to focus group discussion result coffee production is difficult and costly business because it needs intensive labor. In the area, a laborer should be paid 3 birr/hole in order to dig one hole for coffee seedling plantation. Whereas the selling price of coffee is low even it is not possible to cover cost of production and compensate the producers. Because of this some farmers are replacing coffee tree by different crops like *Khat.*

The coffee production in the area is completely follows rain-feed agriculture. Therefore, when there is irregularity on the rainfall pattern like that of 2007 EC the production used to fall down. Disease and theft is also the other constraint for producers which cause a huge loss on the harvest. The common prevailing diseases include CBD, Welt and new disease outbreak. In addition, cheating in weight machine at cooperative market center is also another problem.

The extension service at kebele level is undertaken by one development agent working on all crops. As it is reported by representative from ANRDO, 2016 the ratio of extension agents to producers is 1:500. Because of this agronomic practice are not properly followed. Additionally, coffee producers do not have enough access for some of the required inputs like scissors, cotton, and alcohol. However; these things are very important for proper coffee tree management.

**Table: Constraints of coffee producers**

| Constraint | Frequency(n) | Percentage |
|---|---|---|
| Disease | 180 | 100 |
| Theft | 180 | 100 |
| HR | 29 | 16 |
| Land | 99 | 54.4 |
| Certification | 16 | 8.8 |
| Price | 49 | 27.1 |
| Capital | 72 | 39.8 |
| Transport | 85 | 47 |
| Infrastructure | 119 | 66.1 |
| Brokers | 152 | 84 |
| Climate | 158 | 87.3 |
| Brand | 33 | 18.3 |

**Source: Authors' own computation (2016)**

The major constraints that were raised by the sampled households were disease, climate, theft, and capital. The entire sampled respondents reported that disease and theft are constraints in the study area. When the respondents asked to rank the constraints land was found to be the first followed by climate, disease and theft as shown in the table below.

**Table: Constraints of coffee producers ranked**

| Constraint | Frequency(n) | Percentage | Rank |
|---|---|---|---|
| Land | 48 | 27 | 1st |
| Climate | 45 | 25.3 | 2nd |
| Disease | 37 | 16 | 3rd |
| Theft | 23 | 12.9 | 4th |
| Capital | 17 | 9.3 | 5th |
| Infrastructure | 4 | 2.2 | 6th |
| Broker | 2 | 1.1 | 7th |
| Training | 1 | 0.6 | 8th |
| Human resource | 1 | 0.6 | 8th |

**Source: Authors' own computation (2016)**

3.2.2. Coffee Processors

The major coffee processors in the study area were primary coffee cooperatives, private processors and share company. The major challenges faced by traders according to (FGD, 2016) were discussed below.

The quality of coffee that is supplied by the cooperative members has different problems. This includes mixing coffee with foreign material, with coffee that stayed more than 24hours after harvesting and mixing coffee coming from other districts. The processing operations is also continue to be hampered by infrastructure constraints, especially with regard to access to clean water and good transportation system. The quality of coffee depends on the water used for fermenting and washing. Coffee processors have different market centers that are near to consumers in the village however when it is raining, it is difficult for the truck to bring the collected coffee to the

processing cite on time.

Absence of coffee quality expert in each coffee processing site is among the constraints. There is only one coffee quality expert for 39 kebeles (51 hulling machine) Because of lack of quality expert they are using market linkage expert after short training about quality of coffee but the result is not sufficient. In reality they are a key player in determining the quality of coffee since they are responsible for measuring moisture, loading packing and the like.

Poor infrastructure facility that makes transportation difficult and thus quality of coffee beans is deteriorating. The profit for producers is low because of high cost of labor, transportation and the system of exporting. Transportation cost is becoming very high because the truck used to stay a number of days waiting for a queue. Some of the reasons for the truck to stay at ECX for a long are absence of electric power, waiting for grading etc.., The payment for a truck per day is 1000birr because of this rather than transporting coffee to ECX the trucks prefer to transport wood to Nazeret. But ECX is reporting that they can serve 60 trucks per day but in reality, only 15-20 trucks were served. The price of Sidama coffee is falling down among the other reasons one is electric power fluctuation.

Poor farming practice of the producers is becoming one of the challenges in the district. Those producers who use the proper agronomic practice package are producing 157-160 kg per ha and those who fail to use are producing 30 to 40 kg per ha. Some producers are planting coffee with *khat* and it takes all the minerals from the soil and results floating beans.

On the side of processing firms the sites were not studied before planting the coffee processing machine. Waste materials /*legage/* is entering to the water and the rivers are polluted. It is becoming difficult to find clear water for livestock and domestic use. If it is possible to bring technology to control pollution from coffee washing it will be best.

The capacities of the machineries are very limited because they are very obsolete. If one cooperative purchase 50,000 kg then for processing it takes one or two days. At those times the sites must announce for producers not to harvest coffee beans since it will be difficult for them to process it. Therefore; those who have already harvested will fail to sell or they will sell it another time by mixing it with the new one and this will reduce the quality of coffee (FGD, 2016).

All the sampled processors reported that disease, theft and brokers are the major challenge they were facing. Disease ranked first followed by brokers.

3.2.3. Agriculture and natural resource development office

The major challenges according to FGD & KII were discussed below:-

Poor access to transportation services for extension agents. They do not have enough transportation facilities for providing technical support for producers. They reported that the ratio of extension agents to Motorbike is one to thirteen ration (1:13). In addition, there is also lack of human power especially related to the sector that specializes in coffee quality management. The crop experts are responsible for any technical advice related to coffee tree. Even there is only one coffee quality expert for all coffee processors.

Shortage of budget to supply different inputs for producers is also another challenge for the office. Each year the office has a limited budget to buy and supply different inputs like scissors, cotton, and alcohol for coffee growers.

There is no incentive for producers based on quality supplied; brokers are used to cheat producers, ownership of coffee i.e. Coffee is under the control of the male household so the wife and children used to steal and sell coffee, this contributes for the expansion of illegal coffee trade and the size of the land holding is also small.

3.2.4 Awada Research center

According to key informant interview the followings are the major constraints:-

The nature of the crop: For other crops like *chat* it is possible to harvest three times per year but because of perennial nature of coffee tree the harvesting time is once per year. The other is by its nature coffee tree needs more care.

Production and productivity in Sidama zone is decreasing because of management problem. In the study area most of producers are not willing to remove old trees which are less productive and replace them by the new once. There are different challenging diseases like CBD, Welt and new disease outbreak which are causing a huge loss to the producers.

There is no incentive for those who are producing quality coffee beans; the price is equal for all producers who are supplying different quality coffee beans. These discourage producers from producing high quality coffee.

### 3.3. Major opportunities of coffee value addition

3.3.1. Agriculture and natural resource development office

The major opportunities of Sidama coffee as it is reported by the office of agriculture during interview and focus group discussion, 2016 are: The agro climate of the area is very convenient to coffee production. Coffee is cash crops in the area because of these producers are committed in producing coffee. The economy of the district is

highly dependent on coffee. Therefore, at the time of harvest and processing everyone is alert and busy to support the sector. The other opportunity is the increased in demand of coffee especially starting from last three years the demand for coffee is increasing in local market. Availability of market centers of processors in each kebeles that simplify transportation of producers.

3.3.2. Coffee producers

Coffee producers describe different opportunities and the major once are: Availability of different training for producers, the price of coffee is increasing, the availability of Awada research center (FGD, 2016)

The survey result showed Demand for coffee, extension services, training and government policy was reported as an opportunity by the entire sampled households. Certification, human resource and brand were reported by 91.2%, 84% and 81.7% households respectively.

**Table: Opportunities of coffee producers**

| Opportunity | n | Percentage |
|---|---|---|
| Training | 180 | 100 |
| Demand for coffee | 180 | 100 |
| Extension service | 180 | 100 |
| Government policy | 180 | 100 |
| HR | 152 | 84 |
| Land | 82 | 45.3 |
| Certification | 165 | 91.2 |
| Price | 132 | 72.9 |
| Capital | 109 | 60.2 |
| Transport | 96 | 53 |
| Infrastructure | 61 | 33.9 |
| Brokers | 29 | 16 |
| Climate | 23 | 12.7 |
| Brand | 147 | 81.7 |
| Training | 180 | 100 |

**Source: Authors' own computation (2016)**

When the respondents asked to rank the opportunities demand for coffee was found to be the first followed by extension service and government policy as shown in the table below.

**Table: Opportunities of coffee producers ranked**

| Opportunity | n | Percentage | Ranked |
|---|---|---|---|
| Demand for coffee | 48 | 27 | 1st |
| Extension service | 38 | 21 | 2nd |
| Government policy | 38 | 21 | 2nd |
| Human resource | 20 | 11 | 4th |
| Climate | 16 | 9 | 5th |
| Coffee price | 6 | 3.3 | 6th |
| Infrastructure | 6 | 3.3 | 6th |
| Training | 4 | 2.2 | 7th |
| Capital | 4 | 2.2 | 7th |

**Source: Authors' own computation (2016)**

## 4. CONCLUSION AND RECOMMENDATION

The finding of this study shows the major challenges for coffee value addition were disease, climate, theft, and capital, thus research centers should focus on releasing new varieties which resist the prevailing disease. Agriculture office should assign quality control expert to improve the quality of coffee and get better price.

A respective government institution has to work on the production of input facilities and harvesting technologies so that the export standards are met. Different stockholders should participate on the provision of farm tools like scissor and Quality expert to support extension agents and cooperatives

The major opportunities are availability of genetic diversity, convenient agro-climatic zone, indigenous knowledge, and known coffee brand at both local and international market.

## REFERENCES

Alemseged Assefa andYeabsira Zewdu, 2014.Coffee export business in Ethiopia: Business start-up and operational manual. ECEA, Addis Ababa. 112p.

Admasu S. 1998. Performance Evaluation of Coffee Marketing in Sidama Zone. M.Sc Thesis, Department of Agricultural Economics,Alemaya University,Alemaya, Ethiopia.

 

Bank. W. 1987. Coffee Marketing, Transport and Storage Study. 1(10). Ministry of Coffee and Tea Development, London.

Bart Minten, Seneshaw Tamru, Tadesse Kuma, and Yaw Nyarko, 2014 Structure and performance of Ethiopia's coffee export sector, working paper 66. International food policy research institute (IFPRI)

EEA (The Ethiopian Economic Association) 2000. Annual Report on the Ethiopian Economy. The 2000 Ethiopian Economic Association Report, Addis Abeba, Ethiopia

ECEA (Ethiopian Coffee Exporters Association) 2013. Ethiopia's coffee export performance report 2013. Addis Ababa, Ethiopia

FAO (Food and Agriculture Organization of the United Nations) 2000. A new approach to Commodity Price Risk Management? Wheeler.

Glenn D. Israel, 2013. Determining sample size, The Institute of Food and Agricultural Sciences (IFAS) University of Florida (UF) Gainesville, FL 32611.

Grote. U. 2009. Environmental Labeling. Protected Geographical Indications and the Interests of Developing Countries, The Estey Centre Journal of International Law and Trade Policy 10(1). pp. 94-110.

Jena P. R. Bezawit B.C. Stellmacher T. and Grote U. 2012. The impact of coffee certification on small-scale producers' livelihoods:a case study from the Jimma Zone, Ethiopia. Agricultural Economics 43: 429–440.

Mekonen HailemichaelSalla. 2009. Influence of genotype, location and processing methods on the quality of coffee (coffe aarabica l.). MSc. Thesis. Hawassa University, Hawassa, Ethiopia. 105 p.

Minten B. Tamru S. Kuma.T. and Nyark.Y. 2014. Structure and performance of Ethiopia's coffee export sector, IFPRI, Working paper 66, 2014.

Muleta T. 1979. Coffee Producers' Income Share", Ethiopian Journal of Development Research, Addis Ababa vol. 3(1) pp. 51-68.

Ponte. S. 2004. Standards and Sustainability in the Coffee Sector: A Global Value Chain Approach. Winnipeg, International Institute for Sustainable Development.

Wissel, S., A.Berghöfer,R.Jordan, S. Oldfield andT. Stellmacher 2010.Certification and Labelling. In: TEEB - The Economics of Ecosystems and Biodiversity for Local and Regional Policy Makers. United Nations Environment Programme: 161-171.